

Assembly and operating instructions

REMKO MXD 202, MXD 262, MXD 352, MXD 522

Ceiling cassette for inverter multi-split designed outdoor units





Read these operating instructions carefully before commissioning / using this device!

These instructions are an integral part of the system and must always be kept near or on the device.

Subject to modifications; No liability accepted for errors or misprints!

Installation and operating instructions (translation of the original)

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1 Safety and usage instructions

1.1 General safety notes

Carefully read the operating manual before commissioning the units for the first time. It contains useful tips and notes such as hazard warnings to prevent personal injury and material damage. Failure to follow the directions in this manual not only presents a danger to people, the environment and the system itself, but will void any claims for liability.

Keep this operating manual and the refrigerant data sheet near to the units.

1.2 Identification of notes

This section provides an overview of all important safety aspects for proper protection of people and safe and fault-free operation. The instructions and safety notes contained within this manual must be observed in order to prevent accidents, personal injury and material damage.

Notes attached directly to the units must be observed in their entirety and be kept in a fully legible condition.

Safety notes in this manual are indicated by symbols. Safety notes are introduced with signal words which help to highlight the magnitude of the danger in question.

DANGER!

Contact with live parts poses an immediate danger of death due to electric shock. Damage to the insulation or individual components may pose a danger of death.

DANGER!

This combination of symbol and signal word warns of a situation in which there is immediate danger, which if not avoided may be fatal or cause serious injury.

WARNING!

This combination of symbol and signal word warns of a potentially hazardous situation, which if not avoided may be fatal or cause serious injury.

CAUTION!

This combination of symbol and signal word warns of a potentially hazardous situation, which if not avoided may cause injury or material and environmental damage.

NOTICE!

This combination of symbol and signal word warns of a potentially hazardous situation, which if not avoided may cause material and environmental damage.



This symbol highlights useful tips and recommendations as well as information for efficient and fault-free operation.

1.3 Personnel qualifications

Personnel responsible for commissioning, operation, maintenance, inspection and installation must be able to demonstrate that they hold a qualification which proves their ability to undertake the work.

1.4 Dangers of failure to observe the safety notes

Failure to observe the safety notes may pose a risk to people, the environment and the units. Failure to observe the safety notes may void any claims for damages.

In particular, failure to observe the safety notes may pose the following risks:

- The failure of important unit functions.
- The failure of prescribed methods of maintenance and repair.
- Danger to people on account of electrical and mechanical effects.

1.5 Safety-conscious working

The safety notes contained in this manual, the existing national regulations concerning accident prevention as well as any internal company working, operating and safety regulations must be observed.

1.6 Safety notes for the operator

The operational safety of the units and components is only assured providing they are used as intended and in a fully assembled state.

- The units and components may only be set up, installed and maintained by qualified personnel.
- Protective covers (grille) over moving parts must not be removed from units that are in operation.
- Do not operate units or components with obvious defects or signs of damage.
- Contact with certain unit parts or components may lead to burns or injury.
- The units and components must not be exposed to any mechanical load, extreme levels of humidity or extreme temperature.
- Spaces in which refrigerant can leak sufficient to load and vent. Otherwise there is danger of suffocation.
- All housing parts and device openings, e.g. air inlets and outlets, must be free from foreign objects, fluids or gases.
- The units must be inspected by a service technician at least once annually. Visual inspections and cleaning may be performed by the operator when the units are disconnected from the mains.

1.7 Safety notes for installation, maintenance and inspection

- Appropriate hazard prevention measures must be taken to prevent risks to people when performing installation, repair, maintenance or cleaning work on the units.
- The setup, connection and operation of the units and its components must be undertaken in accordance with the usage and operating conditions stipulated in this manual and comply with all applicable regional regulations.
- Local regulations and laws such as Water Ecology Act must be observed.
- The power supply should be adapted to the requirements of the units.
- Units may only be mounted at the points provided for this purpose at the factory. The units may only be secured or mounted on stable structures, walls or floors.
- Mobile units must be set up securely on suitable surfaces and in an upright position. Stationary units must be permanently installed for operation.
- The units and components should not be operated in areas where there is a heightened risk of damage. Observe the minimum clearances.

- The units and components must be kept at an adequate distance from flammable, explosive, combustible, abrasive and dirty areas or atmospheres.
- Safety devices must not be altered or bypassed.

1.8 Unauthorised modification and changes

Modifications or changes to units and components are not permitted and may cause malfunctions. Safety devices may not be modified or bypassed. Original replacement parts and accessories authorised by the manufacturer ensure safety. The use of other parts may invalidate liability for resulting consequences.

1.9 Intended use

Depending on the model, the units and the additional fittings with which they are equipped are only intended to be used as an air-conditioner for the purpose of cooling or heating the air in an enclosed space.

Any different or additional use is a non-intended use. The manufacturer/supplier assumes no liability for damages arising from a non-intended use. The user bears the sole risk in such cases. Intended use also includes working in accordance with the operating and installation instructions and complying with the maintenance requirements.

The threshold values specified in the technical data must not be exceeded.

1.10 Warranty

For warranty claims to be considered, it is essential that the ordering party or its representative complete and return the "certificate of warranty" to REMKO GmbH & Co. KG at the time when the units are purchased and commissioned.

The warranty conditions are detailed in the "General business and delivery conditions". Furthermore, only the parties to a contract can conclude special agreements beyond these conditions. In this case, contact your contractual partner in the first instance.

1.11 Transport and packaging

The devices are supplied in a sturdy shipping container. Please check the equipment immediately upon delivery and note any damage or missing parts on the delivery and inform the shipper and your contractual partner. For later complaints can not be guaranteed.



WARNING!

Plastic films and bags etc. are dangerous toys for children!

Why:

- Leave packaging material are not around.
- Packaging material may not be accessible to children!

1.12 Environmental protection and recycling

Disposal of packaging

All products are packed for transport in environmentally friendly materials. Make a valuable contribution to reducing waste and sustaining raw materials. Only dispose of packaging at approved collection points.



Disposal of equipment and components

Only recyclable materials are used in the manufacture of the devices and components. Help protect the environment by ensuring that the devices or components (for example batteries) are not disposed in household waste, but only in accordance with local regulations and in an environmentally safe manner, e.g. using certified firms and recycling specialists or at collection points.



2 Technical data

2.1 Technical data

Series		MXD 202	MXD 262	MXD 352	MXD 522
Operating mode		Ceiling cassette for inverter multi-split designed outdoor units for cooling and heating			
Nominal cooling output ¹⁾	kW	2,05	2,64	3,51	5,27
Nominal heating output ²⁾	kW	2,34	3,22	3,81	6,00
Operating range (room volume), approx.	m ³	60	80	110	160
Room-temperature adjustment range	°C	+17 to +30			
Operating range	°C	+17 to +32			
Refrigerant		R 410A ⁴⁾			
Operating pressure max. / per cooling circuit	kPa	4200 / 1500			
Air flow volume per speed setting	m ³ /h	380/445/580	380/445/580	500/570/720	635/690/800
Sound press. level per speed setting ³⁾	dB (A)	40/44/48	40/44/48	40/43/48	40/43/46
Sound power (Turbo mode)	dB (A)	52	53	54	54
Power supply	V/Hz	230 / 1~ / 50			
Protection class	IP	X 0			
Nom. electrical power consumption, cooling ¹⁾	W	15	15	20	102
Nom. electrical power consumption, heating ²⁾	W	15	15	20	102
Nom. electrical current consumption, cooling ¹⁾	A	0,06	0,06	0,08	0,44
Nom. electrical power consumption, heating ²⁾	A	0,06	0,06	0,08	0,44
Refrigerant connection - injection line	Inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)
Coolant connection - suction line	Inch (mm)	3/8 (9,52)	3/8 (9,52)	3/8 (9,52)	1/2 (12,70)
Condensate drain	mm	25	25	25	25
Condensate pump, max. pumping capacity	mm WS	500			

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Series		MXD 202	MXD 262	MXD 352	MXD 522
Dimensions ceiling cassette					
Length	mm	570	570	570	570
Width	mm	570	570	570	570
Depth	mm	260	260	260	260
Dimensions cover					
Length	mm	647	647	647	647
Width	mm	647	647	647	647
Depth	mm	50	50	50	50
Weight	kg	15,0	16,0	17,0	18,0
Weight cover	kg	2,5	2,5	2,5	2,5
Serial number		1324...	1325...	1326...	1327...
Computerised part no.		1623252	1623257	1623262	1623267

¹⁾ Air intake temp. TK 27°C / FK 19°C, outdoor temp. TK 35°C / FK 24°C, max. air volume, 5m pipe length

²⁾ Air intake temperature TK 20°C outdoor temperature TK 7°C, FK 6°C, max. air volume, 5m pipe length

³⁾ Distance 1 m free field

⁴⁾ Contains greenhouse gas according to Kyoto protocol

For details of the energy efficiency see operating instructions corresponding external unit

2.2 Unit dimensions

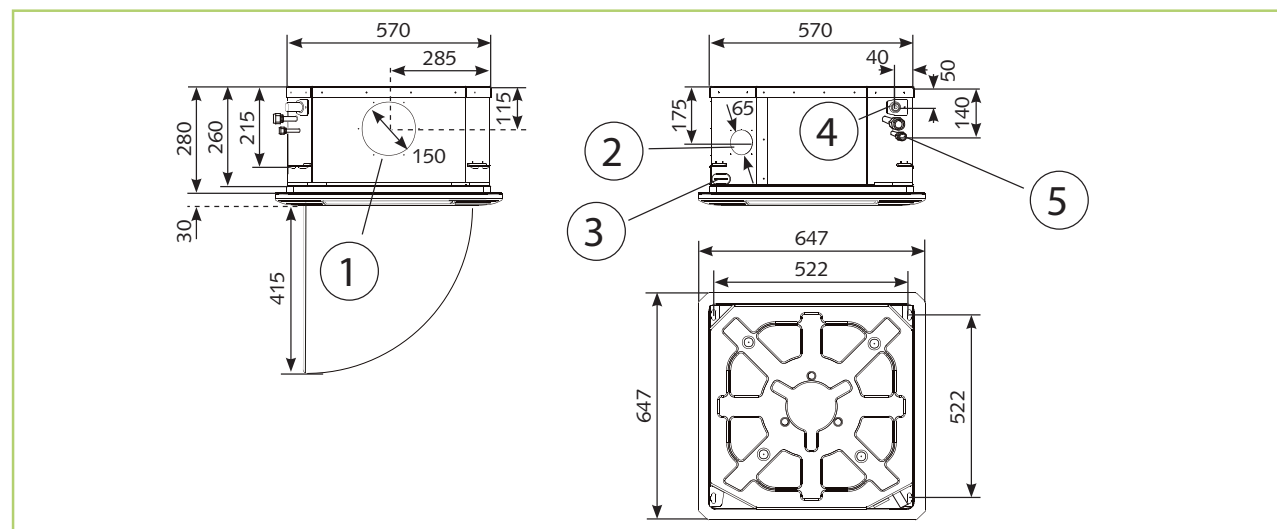


Fig. 1: Dimensions MXD 202-522 (All measurements in mm)

1: Adjoining room connection

4: Condensate drain

2: Fresh air connection

5: Refrigerant connection

3: Implementation of electrical control line

We reserve the right to modify the dimensions and design as part of the ongoing technical development process.

3 Design and function

3.1 Equipment description

The indoor unit serves to extract heat from the indoor room being cooled. The outdoor unit then expels this heat to the outside.

If combined heating/cooling units are operated as heaters, the heat absorbed by the outdoor unit can be discharged by the indoor unit into the room being heated.

The unit series has priority "heating", this means that units that are in heating or automatic mode, other units in the system that are in cooling mode can switch off.

The unit is designed for installation high up on indoor walls.

Operation takes place using an infrared remote control.

The indoor unit consists of a fin vaporiser, vaporiser fan, controller and condensation pan. The indoor unit can be combined with REMKO outdoor units of series MVT 601DC, 901DC and 1051DC with sufficient combinations. The outdoor component is controlled via the controller of the indoor unit.

Cabled remote control and condensation pump are available as an accessory.

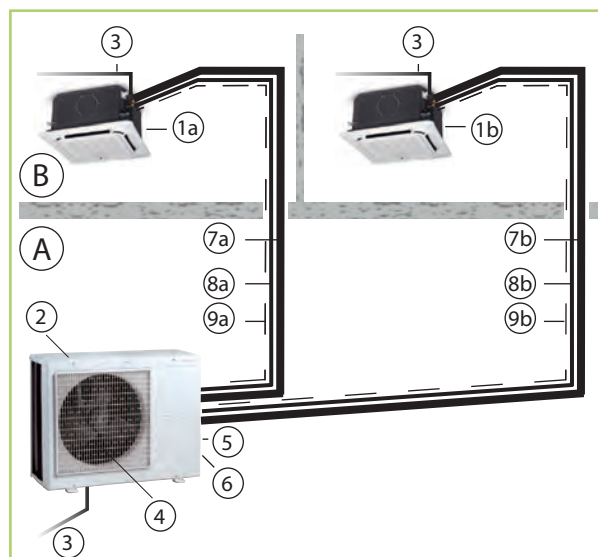


Fig. 2: System layout
(In this example: MVT 901 DC with 2 MXD 352)

- A: Outdoor area
- B: Indoor area
- 1 a,b: Indoor units
- 2: Outdoor unit
- 3: Condensate drain
- 4: Condenser fan
- 5: Power output
- 6: Shut-off valve
- 7 a,b: Suction pipe
- 8 a,b: Injection pipe
- 9 a,b: Control line

Refrigerant pipes are used to connect the indoor unit to the outdoor unit.

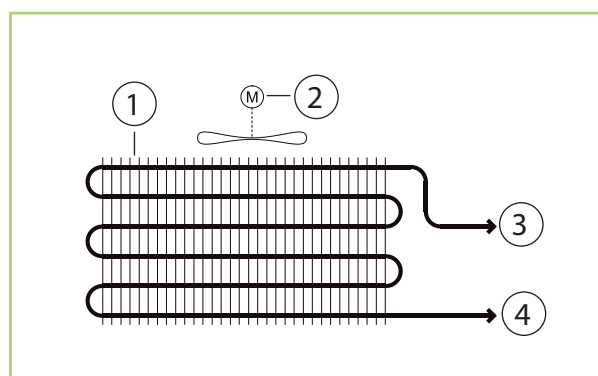


Fig. 3: Schematic of refrigerant circuit

- 1: Evaporator
- 2: Evaporator fan
- 3: Connection suction pipe
- 4: Connection injection pipe

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3.2 Combinations

Indoor units

The indoor units MXD 202-522 can be combined with MVT 601DC, 901DC und 1051DC series outdoor units. The following combinations are possible.

Outdoor unit MVT 601 DC

Combina- tion	MXD 202	MXD 262	MXD 352	MXD 522
One indoor unit				
1	•			
2		•		
3			•	
4				•
Two indoor units				
5	••			
6		••		
7			••	
8	•	•		
9	•		•	
10		•	•	
11	•			•

Outdoor unit MVT 901 DC

Combina- tion	MXD 202	MXD 262	MXD 352	MXD 522
One indoor unit				
1	•			
2		•		
3			•	
4				•
Two indoor units				
5	••			
6		••		
7			••	
8	•	•		
9	•		•	
10	•			•

Combina- tion	MXD 202	MXD 262	MXD 352	MXD 522
11		•		•
12			•	•
13		•	•	
Three indoor units				
14	•••			
15		•••		
16	••	•		
17	••		•	
18	•	••		
19	•	•	•	
20	•		••	
21		••	•	
22	••			•

Outdoor unit MVT 1051 DC

Combina- tion	MXD 202	MXD 262	MXD 352	MXD 522
One indoor unit				
1	•			
2		•		
3			•	
4				•
Two indoor units				
5	••			
6		••		
7			••	
8	•	•		
9	•		•	
10		•	•	
11	•			•
12		•		•
13			•	•
14				••

Outdoor unit MVT 1051 DC (Fortsetzung)

Combina- tion	MXD 202	MXD 262	MXD 352	MXD 522
Three indoor units				
15	●●●			
16		●●●		
17			●●●	
18		●●	●	
19	●●	●		
20	●●		●	
21	●	●●		
22	●	●	●	
23	●		●●	
24		●	●●	
25	●●			●
26	●	●		●
27	●		●	●
28		●●		●
29		●	●	●
30	●			●●
31		●		●●
32			●●	●
Four indoor units				
33	●●●●			
34		●●●●		
35			●●●●	
36	●●●	●		
37	●●●		●	
38	●●	●●		
39	●●	●	●	
40	●	●●●		
41	●	●●	●	
42		●●●	●	
43	●●		●●	
44	●	●	●●	
45	●●	●		●
46	●●		●	●

Combina- tion	MXD 202	MXD 262	MXD 352	MXD 522
47	●●			●●
48	●	●●		●
49	●	●	●	●
50	●●●			●
51		●●●		●
52	●		●●	●
53		●●	●	●
54		●●	●●	
55		●	●●●	
56	●		●●●	

4 Operation

The indoor unit is easily operated using the standard infrared remote control. The indoor unit beeps to acknowledge the correct transmission of data. If it is not possible to program the indoor unit using the remote control, it can also be manually operated.

Manual operation

The indoor units can be started manually. Press the "MANUAL" button on the receiver unit of the cover to activate automatic and the cooling mode then. The third press turns the unit off. A pressing again switches back to automatic mode. Within the whole plant, the unit having manually setting the cooling mode will be the guide unit. In manual mode, the following settings apply:

Cooling mode: 24 °C, fan speed: AUTO

Heating mode: 26 °C, fan speed: AUTO

Pressing any button on the infrared remote control interrupts manual mode.

Infrared remote control

The infrared remote control sends the programmed settings over a distance of up to 6 m from the receiver of the indoor unit. Data will only be received correctly if the remote control is pointed at the receiver and no objects obstruct the transmission path.

First insert the batteries supplied on delivery (2 x type AAA) into the remote control. To do so, pull off the flap of the battery compartment and insert the batteries according to their polarity (see markings).



Fig. 4: Maximum distance



Alarms are indicated by a code (see chapter Troubleshooting and customer service).

! NOTICE!

Immediately replace flat batteries with a new set, otherwise there is a risk of leakage. It is recommended that the batteries are removed if the equipment is shut down for longer periods.



Help save on energy consumption in stand-by mode! If the device, system or component is not in use, we recommend disconnecting the power supply. Components with a safety function is excluded from our recommendation!

Display on the indoor unit

The lit LED indicators show the settings:

LED OPERATION green = unit is on

LED TIMER yellow = timer is programmed

LED DEF/FAN red = defrosting active / air circulation mode

LED ALARM red = presence of a fault

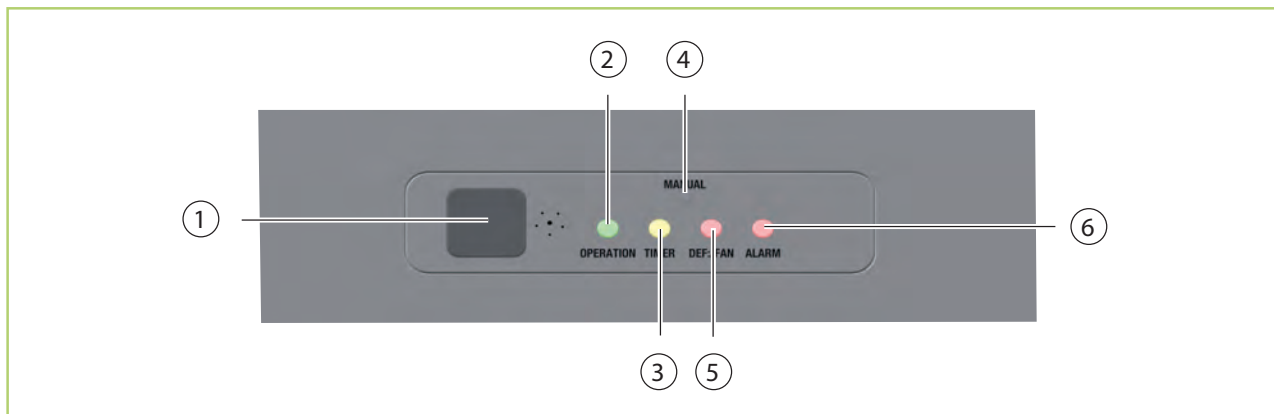


Fig. 5: Display on the indoor unit

- | | |
|---|-----------------------------|
| 1: Unit for receiving signals from the remote control | 4: Key for manual operation |
| 2: Operation indicator | 5: Fan Defrost |
| 3: Timer indicator | 6: Alarm indicator |

Keys on the remote control

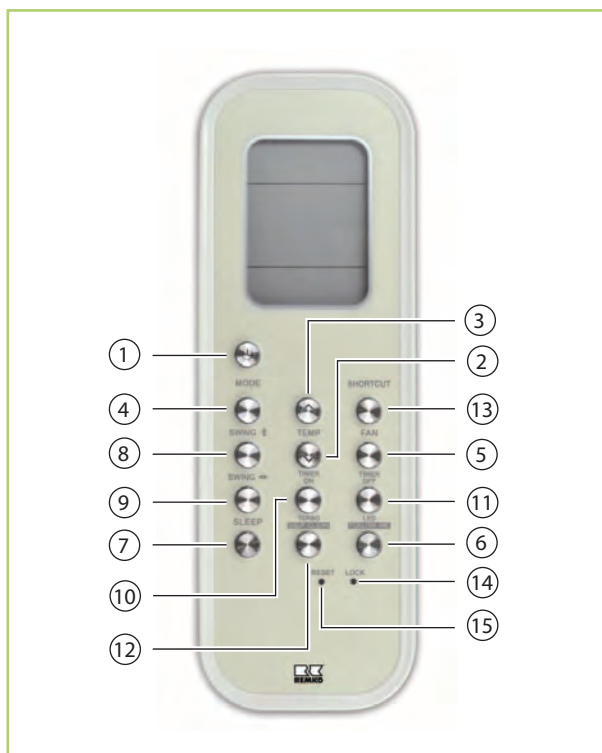


Fig. 6: Keys of the remote control

① Key „ON/OFF“

Press this key to operate the unit.

② Key "▼"

With this key, the desired temperature can be decreased to 17°C.

③ Key "▲"

With this key, the desired temperature can be increased up to 30°C.

④ Key „MODE“

Press this key to select the operating mode. The indoor unit has 5 modes:

1. Automatic mode

In this mode, the unit works in cooling or in heating mode.

2. Cooling mode

In this mode, the warm air in the room is cooled down to the desired temperature.

3. Dehumidification mode

In this mode, the room is dehumidified, thereby the room temperature significantly lowered. Influencing temperature and fan speed in this mode not possible.

4. Heating mode

In this mode, the warm air in the room is warmed to the desired temperature.

5. Air circulation mode

In this mode, the air in the room is circulated with no change in temperature.

⑤ Key „FAN“

Press this key to set the desired fan speed. 4 speeds are available:

Automatic, high, medium and low fan speed.

⑥ Key „LED/FOLLOW ME“

Short press this button enables / disables the LED display on the indoor unit.

With pressing this key longer then 2 sec., the sensing of the room temperature is moved from the interior unit to the remote control. The temperature measured on the remote control is then transmitted to the interior unit in certain intervals.

⑦ Key „SLEEP“

Pressing this key will automatically increase the target temperature by 1 °C every hour in cooling mode, and decrease the target temperature by 1 °C every hour in heating mode.

⑧ Key „SWING“

This key directly activates the oscillating function of the fins for better air distribution in the room.

⑨ Key „DIRECT“

The position of the exhaust fins is determined with this button. The fins change by pressing of the „DIRECT“-key they position by 6°.

⑩ Key „TIMER ON“

This button initiates the automatic switch-on time for the unit. Each time the key is pressed, the automatic time setting increases in increments of 30 minutes. Once the time setting shows 10.0, the automatic time setting increases in increments of 60 minutes each time the key is pressed. In order to cancel the automatic time setting, simply set the automatic switch-on time to 0.0.

⑪ Key „TIMER OFF“

This button initiates the automatic switch-off time for the unit. Each time the key is pressed, the automatic time setting increases in increments of 30 minutes. Once the time setting shows 10.0, the automatic time setting increases in increments of 60 minutes each time the key is pressed. In order to cancel the automatic time setting, simply set the automatic switch-off time to 0.0.

⑫ Key „TURBO“

The „TURBO“- key allows the preset temperature to be reached in the shortest possible time. Pressing this key in "Cooling mode" causes the unit to blow a blast of cooling air into the room at a very high fan speed.

⑬ Key „SHORTCUT“

By first press on this button the setpoint to 24 ° C and the fan speed is set to automatic. When the button is pressed while the remote control during the operation, the unit resets to the last setting operating mode.

⑭ Key „LOCK“

This key can be used to lock the keys on the remote control. Press again this key and the remote control can be used again.

⑮ Key „RESET“

Press the "RESET" key to reset all settings to factory settings.

Remote control display

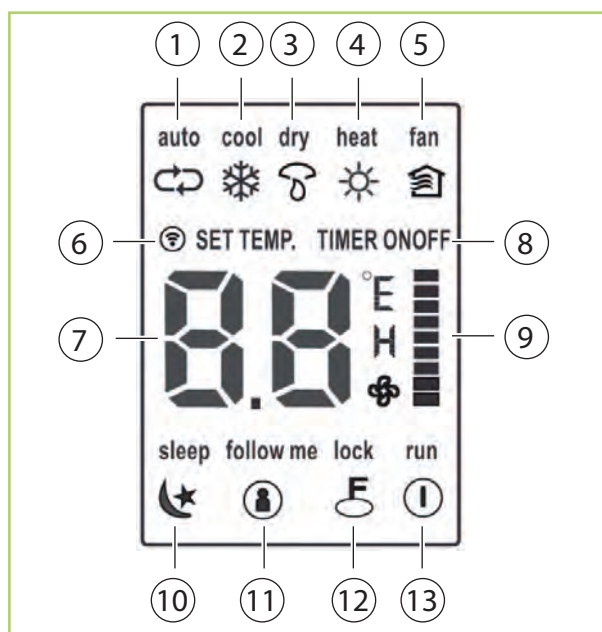


Fig. 7: Remote control display

- 1: Automatic mode
- 2: Cooling mode
- 3: Dehumidifying mode
- 4: Heating mode
- 5: Air circulation mode
- 6: Indicator signal transmission
- 7: Display for temperature/timer
- 8: Timer activated/deactivated
- 9: Display of fan speed
- 10: Sleep-mode activated
- 11: Follow-Me function activated
- 12: Remote control locked
- 13: Display on/off

Key functions

A symbol is shown on the display to indicate that the settings are being transferred.

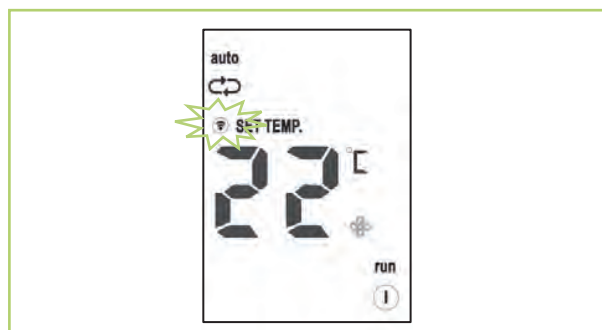


Fig. 8: Key functions

Remote control on/off

The remote control's on/off function is shown at the lower right of the remote control by a "circular symbol".

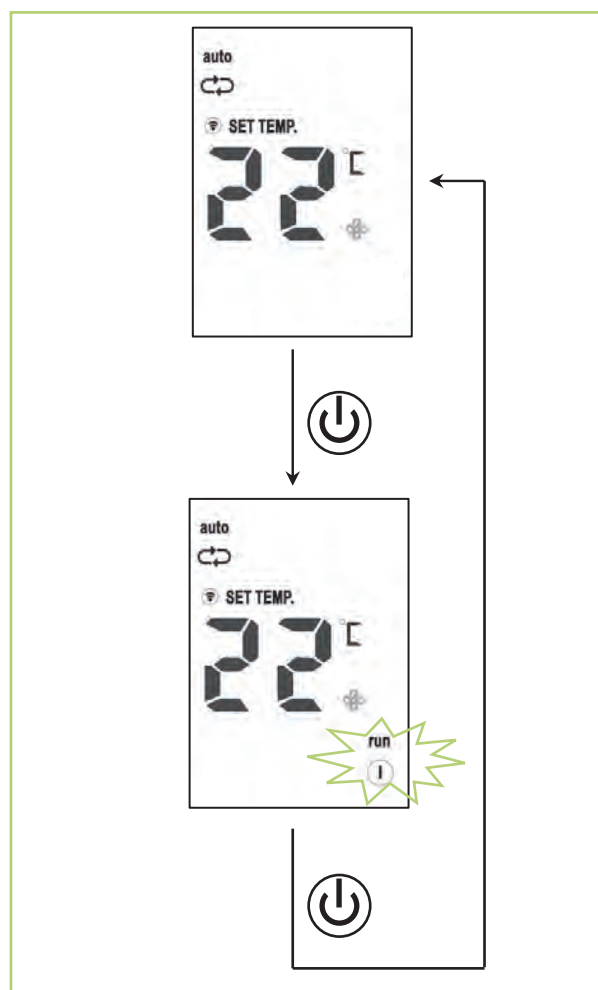


Fig. 9: Remote control on/off

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"" and ""-keys

Using the key, the target temperature can be adjusted up or down by 1°C. The temperature range lies between 17°C and 30°C

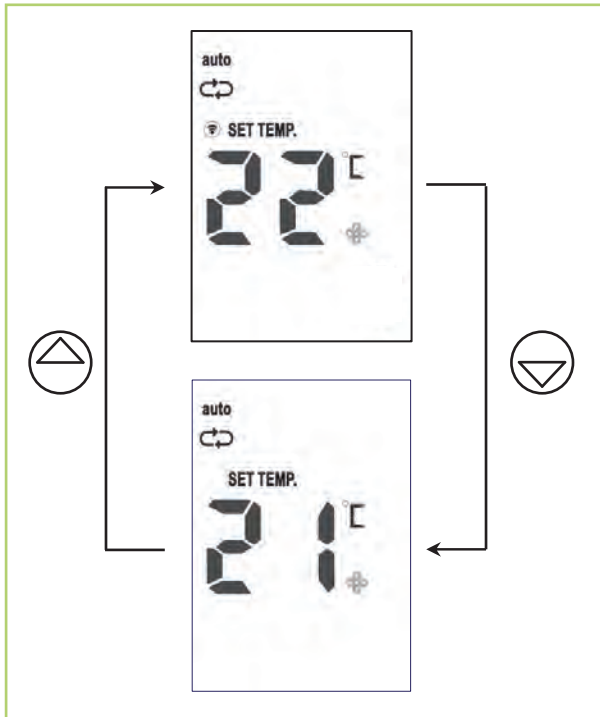




Fig. 10: "" and ""-keys

"MODE" key

Use the MODE key to select between individual operating modes.

A total of 5 modes are available:

1. Automatic
2. Cooling
3. Dehumidifying
4. Heating
5. Air circulation

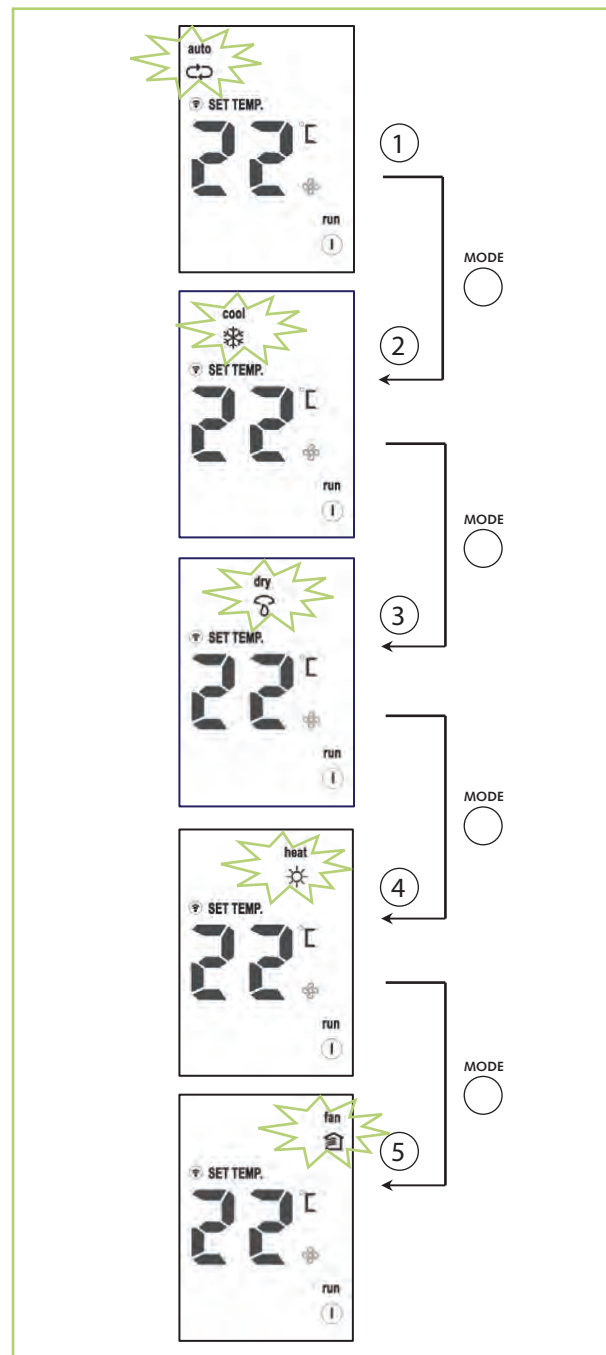


Fig. 11: Mode key

"Automatic" mode

In automatic mode, the controller autonomously selects between heating, circulation or cooling mode based on the room temperature T_r and the selected target value T_s . The target value can be adjusted between 17°C and 30°C by means of the "⊕" and "⊖" keys. The fan speed is selected automatically.



Fig. 12: "Automatic" mode

Funktion:

$T_r < T_s = 1\text{ °C}$, then operating mode **"Heating"** is selected.

$T_r > T_s = 2\text{ °C}$, then operating mode **"Cooling"** is selected.

$T_r < -1\text{ °C} \dots T_s \dots +2\text{ °C}$, then operating mode **"Circulation"** is selected.

If after the compressor is shut down and not required for more than 15 mins. within an operating mode, then, in the event that the room temperature deviates, the corresponding mode **heating, cooling or circulation** will be selected again.



The heating mode has priority!

Turns on the indoor unit to the heating mode, switch off the other indoor units from which are in cooling mode, the cooling. During heating operation can not be cooled.

„Dehumidification“ mode

It is recommended that the target temperature be set to 24°C in dehumidifying mode. Due to the low temperature of the refrigerant, the dew point of the air at the condenser is undercut. The excess moisture in the air is condensed by the vaporiser, the room is dehumidified.



Fig. 13: "Dehumidification" mode

„Cooling“ mode

In cooling mode, the air in the room is cooled down to the adjusted nominal temperature. The desired room temperature is set with the "⊕" and "⊖" keys in 1 °C increments. If the room temperature is 0.5 °C above the selected nominal temperature, then the interior unit starts to cool down the air in the room. If the temperature falls to approx. 1 °C below the set room temperature, the controller will switch off the cooling function. To protect the compressor, the controller only turns cooling on again after a waiting period of 3 minutes.



Fig. 14: „Cooling“ mode

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„Heating“ mode

In the heating mode, you can heat the room in spring or fall. The selected room temperature is set using the "☉" and "☌" keys in 1 °C increments. If the room temperature is 1 °C below the selected target temperature, the indoor unit starts to heat the air in the room. If the set room temperature is exceeded by approx. 1 °C, the controller will switch off the heater function. To protect the compressor, the controller will wait 3 minutes before switching on the heating mode again. The fan operation starts only at a temperature of 32 °C at the heat exchanger.



Fig. 15: „Heating“ mode



The heating mode has priority!

Turns on the indoor unit to the heating mode, switch off the other indoor units from which are in cooling mode, the cooling. During heating operation can not be cooled.

„FAN“ key

Function

1. Automatic
2. Low
3. Medium
4. High

Automatic function:

<ca. 1,5 °C = low level

> ca. 1,5 °C = middle level

> ca. 3,5 °C = high level

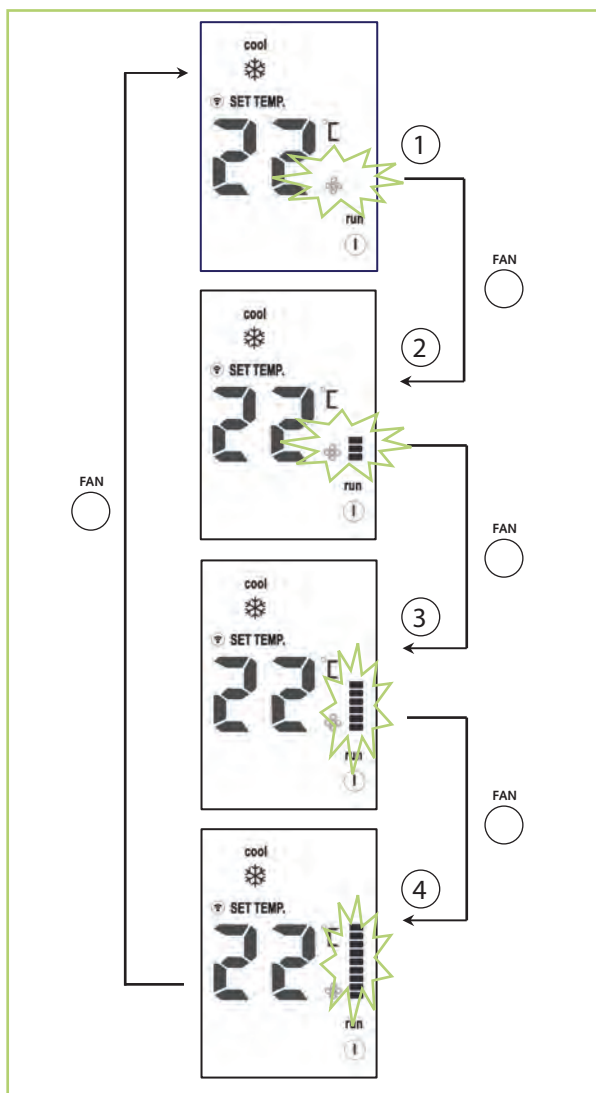


Fig. 16: "Fan" key

„Follow-Me“ function

This function allows the transfer the measurement of the room temperature from the indoor unit to the remote control. Measuring the temperature at the remote control is then transmitted at intervals to the indoor unit.

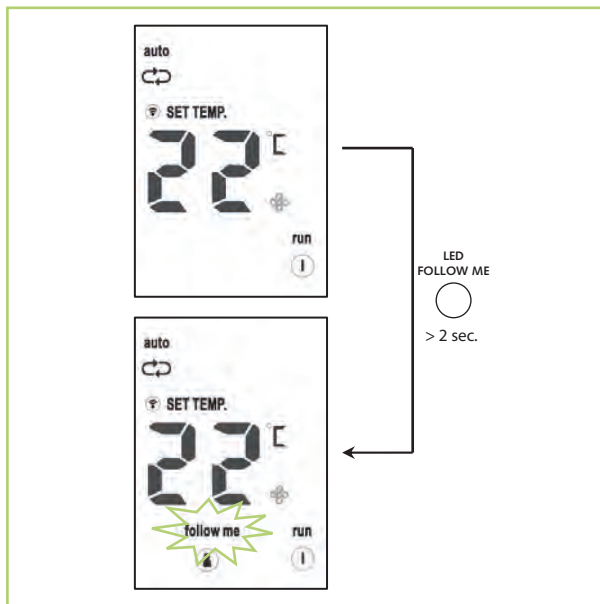


Fig. 17: „Follow-Me“ function

„SLEEP“ key

A programming function is activated using this key, which increases the target temperature in cooling mode by 1°C after one hour and by 2°C after 2 hours. In heating mode, the target temperature is decreased by 1 °C after one hour by 2 °C after 2 hours. The unit switches off automatically after 8 hours.

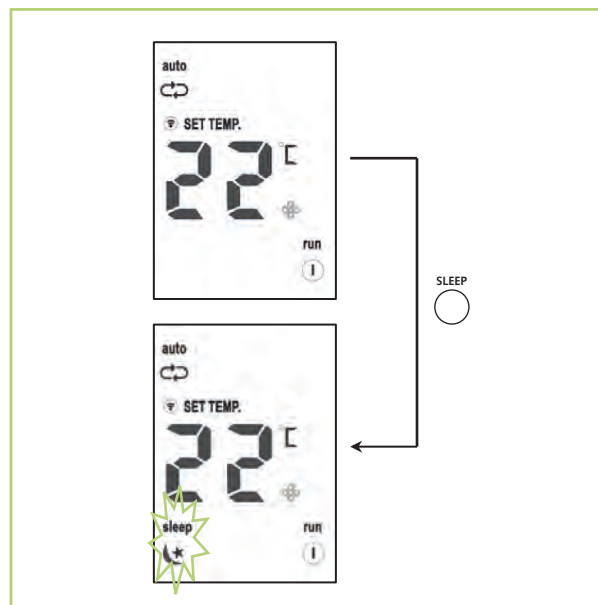


Fig. 18: "Sleep" key

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„TIMER ON“ key

This key allows the unit is **switched off** in an adjustable interval of 30 minutes (0.5 h) to **switch on** the unit.

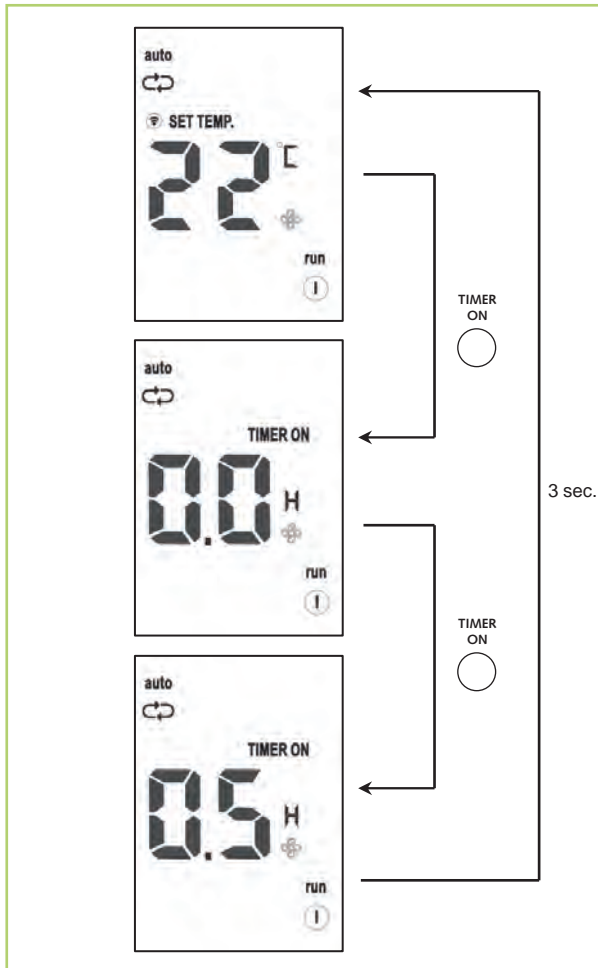


Fig. 19: „TIMER ON“ key

„TIMER OFF“ key

This key allows the unit is **switched on** in an adjustable interval of 30 minutes (0.5 h) to **switch off** the unit.

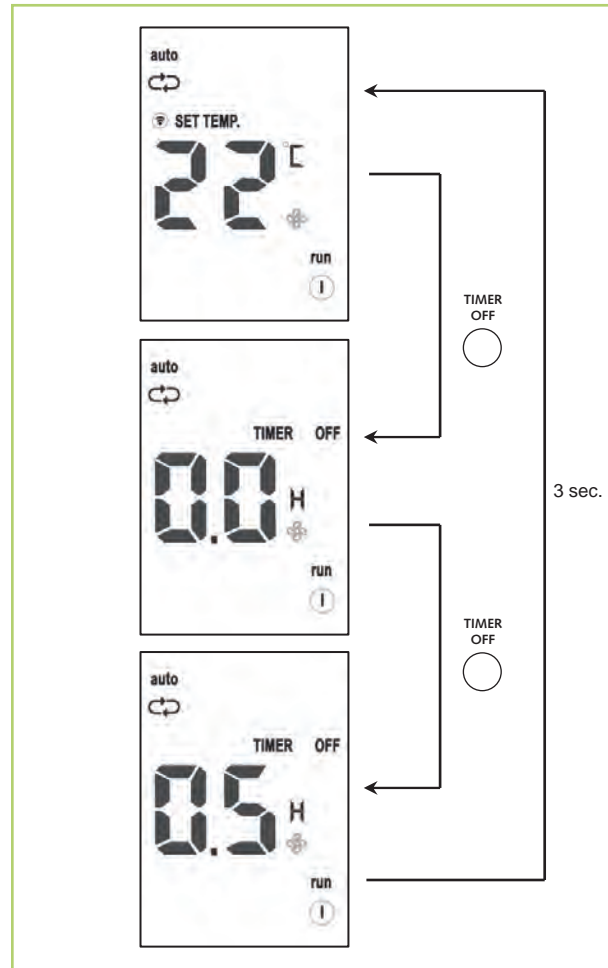


Fig. 20: „TIMER OFF“ key

„TURBO/FP“ key

The maximum fan speed and the compressor is activated by pressing the "TURBO/FP" key.

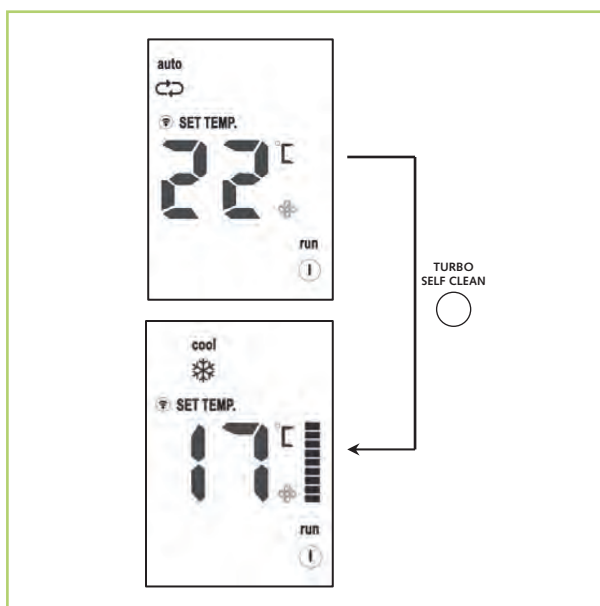


Fig. 21: „TURBO/FP“ key

„RESET“ key

With this recessed key the remote control can be reset.

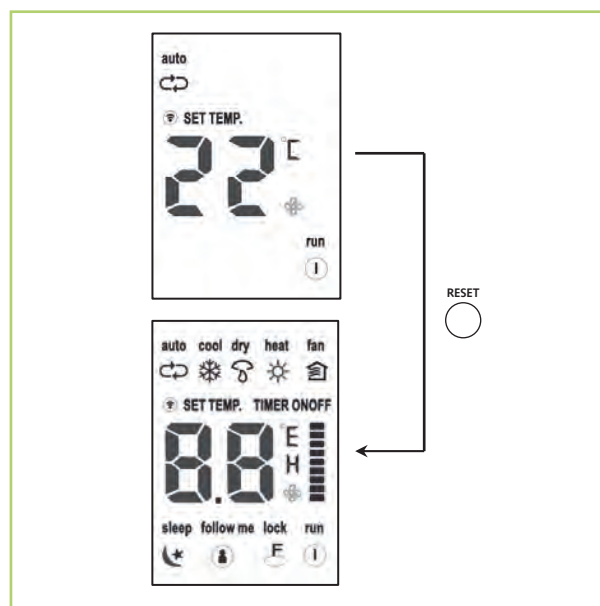


Fig. 23: „RESET“ key

„LOCK“ key

The functions of the remote control can be disabled with this recessed key. This can prevent accidental adjustment of the set values.

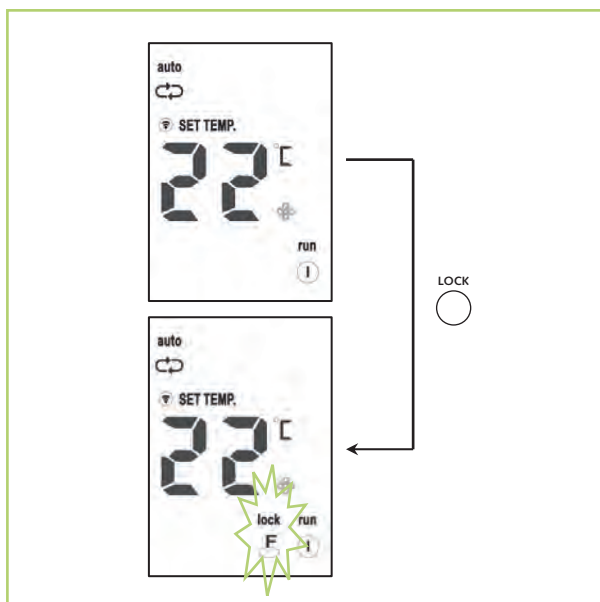


Fig. 22: „LOCK“ key

Cable remote control

Connection of an optional cable remote control

The plug for connecting a cable remote control is located on the panel the ceiling cassette (s. Fig. 24, [A]). The 5-wired cable, coming from the display board, is provided with the designations A-E (s. Fig. 24, [B]).

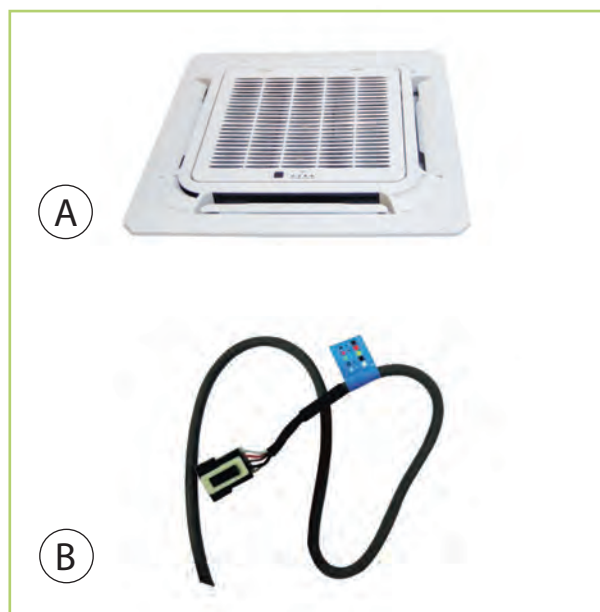


Fig. 24: Connection of a cable remote control

5 Installation instructions for qualified personnel

Important notes prior to installation

Observe the operating manuals for the indoor unit and the outdoor unit when installing the entire system.

- Transport the unit in its original packaging as close as possible to the installation location. You avoid transport damage by doing so.
- Check the contents of the packaging for completeness and check the unit for visible transport damage. Report any damage immediately to your contractual partner and the shipping company.
- Lift the unit on the corners and not on the refrigerant or condensate drainage connections.
- The refrigerant piping (injection and suction pipe), valves and connections must be insulated against vapour density. If necessary also insulate the condensate drainage line.
- Select an installation location which allows air to freely flow through the air inlet and outlet (see section "Minimum clearances")
- Do not install the unit in the immediate vicinity of devices which generate intensive thermal radiation. Installation in the vicinity of thermal radiation reduces the unit output.
- Install the refrigerant piping from the indoor unit to the outdoor unit.
- Seal off open refrigerant piping with suitable caps or adhesive strips to prevent the infiltration of moisture and never kink or compress the refrigerant piping.
- Only use the union nuts supplied with the refrigerant piping. These should only be removed shortly before connecting the refrigerant piping.
- Carry out all electrical wiring in accordance with applicable DIN and VDE standards.
- Ensure the electrical cables are properly connected to the terminals. Otherwise there is a risk of fire.
- Service openings should be provided in the suspended ceiling to allow maintenance access to the control box.

Installation materials

The indoor unit is fastened using a wall brace and 4 bolts (provided by the customer). In order to complete the installation, use the supplied installation material. Appropriate dowels, trapezoidal sheet metal supports, steel profiles, fixing clips for refrigerant and condensation pipes (as well as laying ducts) and connection fittings for condensation pipes must also be provided.

Selection of installation location

The indoor unit is designed for horizontal mounting in suspended ceilings with Euroraster dimensions. It can also be installed in other types of suspended ceilings with different dimensions. Take into account the installation height of the equipment.

Minimum clearances

Observe the minimum clearances to allow access for maintenance and repair work and facilitate optimum air distribution.

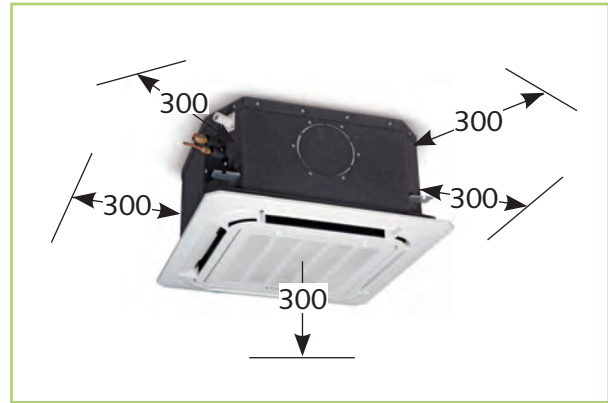


Fig. 25: Minimum clearances MXD 262-522 (all measurements in mm)

6 Installation

! NOTICE!

Installation should only be performed by authorised specialists.

Unit installation

The unit is mounted on four threaded rods with the cover face down. Take into account the ceiling grid and any other installations.

1. Use the dimensions of the ceiling cassette to mark the fixing points for the threaded rods on structural parts approved to support the static load, and above the suspended ceiling. (Fig. 26).
2. Fit the indoor unit onto the threaded rods and use the lower nuts to level the unit (Fig. 27).
3. Ensure a clearance of 35 mm from the ceiling. Connect the refrigerant pipes, electrical cables and condensation pipe to the indoor unit as described below.
4. Check that the unit is level.
5. The final task is to tighten the counter-nuts and attach the cover.

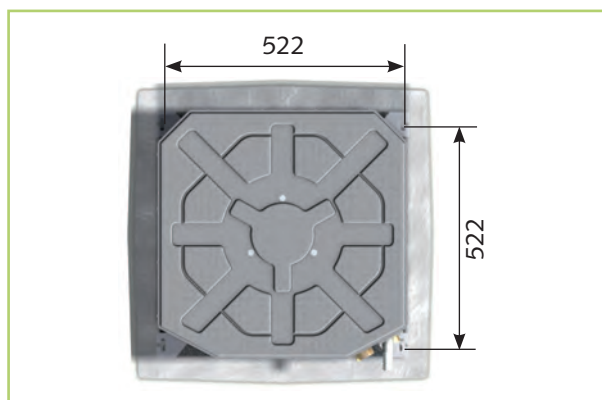


Fig. 26: Unit attachment (MXD 202-522)

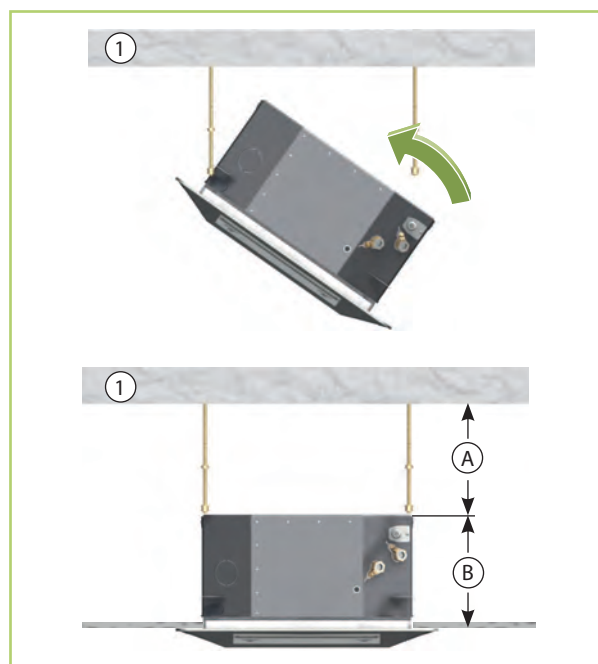


Fig. 27: Hooking in the unit (MXD 202-522)

- 1: Structural component
A: Minimum 35 mm
B: 265 mm

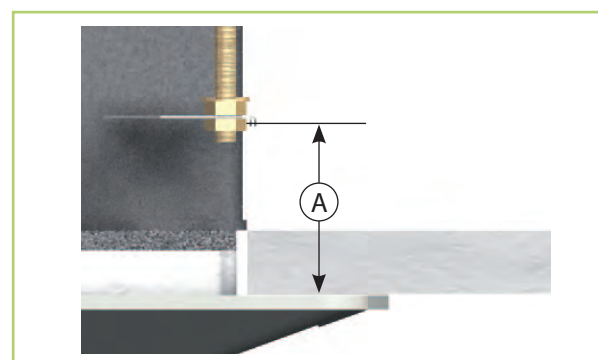


Fig. 28: Fasten the unit

A: Distance A

	MXD 262-522
Distance A	70 mm
Suspension	545 mm x 525 mm

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Connecting the refrigerant lines

By customer on-site connecting the refrigerant lines are at a corner of the unit within the false ceiling. It may be necessary to fit a reducing or extending adapter to the indoor units. These fittings are included with the indoor unit as an accessory kit. Once installed, the connections should be sealed to prevent vapour diffusion.

Performance	Indoor unit			Refrigerant pipe		Indoor unit MXD 202-522		
Indoor unit	Connecting		Reducing / extending	Refrigerant pipe		Reducing / extending	Connecting	
	EL	SL	SL	EL	SL	SL	EL	SL
2,0 kW	1/4"	3/8"	-	1/4"	3/8"	-	1/4"	3/8"
2,6 kW	1/4"	3/8"	-	1/4"	3/8"	-	1/4"	3/8"
3,5 kW	1/4"	3/8"	-	1/4"	3/8"	-	1/4"	3/8"
5,2 kW	1/4"	3/8"	Erw. 3/8" AT -> 1/2" IT	1/4"	1/2"	-	1/4"	1/2"

Note: SL = Suction pipe (large pipe), EL = injection pipe (small pipe)

Adjacent room and fresh air connection

The indoor unit is designed to cool an adjacent second room and, independently of this, to suction in fresh air.

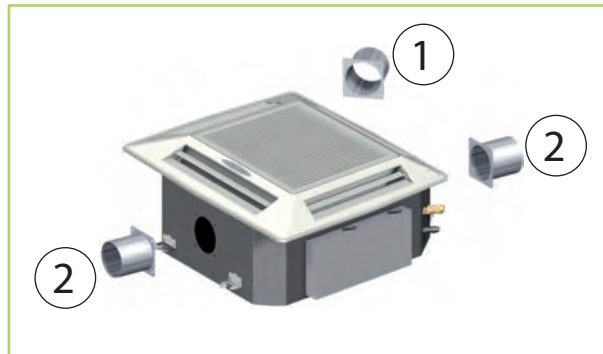


Fig. 29: Adjacent room and fresh air connection

- 1: Fresh air connection
- 2: Adjacent room connection

! NOTICE!

Only one adjacent room connection and one fresh air connection may be used!

! NOTICE!

The unit is factory filled with dry nitrogen for leak testing purposes. The pressurised nitrogen is released when the union nuts are undone.

Installation instructions

To install the fresh air connection and the connection for the adjacent room, proceed as follows:

1. Remember that directly behind the insulation to be removed are the plate fins of the heat-exchanger and that these may by no means be damaged (Fig. 30).
2. Carefully remove the insulation behind the opening. (Fig. 31).
3. Break through the corresponding openings (Fig. 32).
4. Keep the vent pipe as short as possible and lay it with as few bends as necessary.
5. Keep in mind that the flanged collar, screws, flexible/folded spiral-seam pipes and insulation materials must be provided by the customer. These parts can all be purchased from your dealer. (Fig. 33).



Fig. 30: Remove punching outs



Fig. 31: Remove insulation



Fig. 32: Break through openings



Fig. 33: Mounting connecting piece

Adjacent room connection

The indoor unit allows you to cool an adjacent room via a duct system, e.g. in a suspended ceiling. The following conditions must be met:

- Pay attention to local regulations for air treatment.
- For the adjacent room connection, a flanged collar with a minimum diameter of NW 150 must be mounting.
- The cooling capacity of the indoor unit must be adequate for cooling both rooms.

- There must be an opening created between the two rooms that allows the air to circulate between them.
- A maximum pipe length of 7 m may not be exceeded (Fig. 34).
- To ensure that air is transported to the adjacent room, 1 or 2 of the 4 air outlets are to be sealed on the indoor unit. To do this, use a black strip with adhesive on one side which is stuck to the opening(s) to be sealed. The strip must be able to permanently withstand the strain from the air pressure.

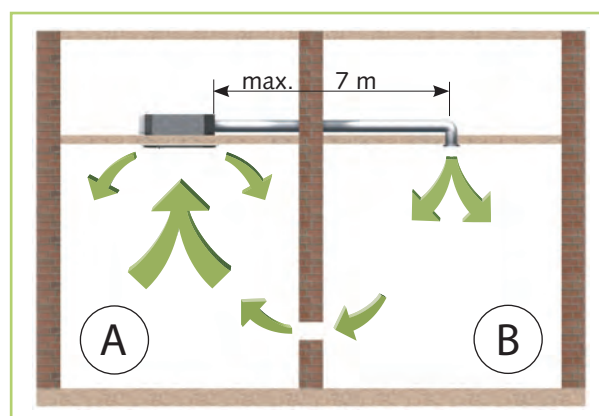


Fig. 34: Adjacent room connection

A: Main room
B: Adjacent room

Fresh air connection

As already described, it is possible to suction in fresh air (outside air) in addition to the room air with the indoor unit and regulate the temperature. This is the preferred alternative in rooms where air is used up quickly.

- Pay attention to local regulations for air treatment.
- For the fresh air connection, a flanged collar with a minimum diameter of 65 mm must be mounting (Fig. 35).

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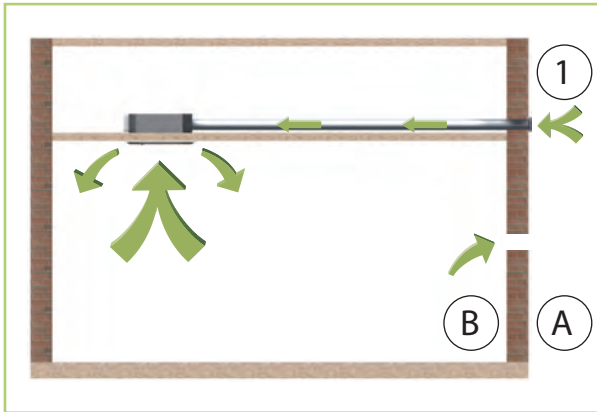


Fig. 35: Fresh air connection

- 1: Fresh air inlet
A: Outdoor
B: Indoor

- The quantity of fresh air may not exceed 10% of the nominal circulating air volume; otherwise it is possible that the unit will not work properly.
- To prevent rainwater from entering the unit, the air may only be suctioned in by the fresh air intake at a maximum speed of 2.5 m/s.
- To connect the fan, it is necessary for the customer to install a separately fused electrical installation.

In addition, in the following picture framed poly-styrene partition the drip pan must be removed with a knife. (Fig. 36).

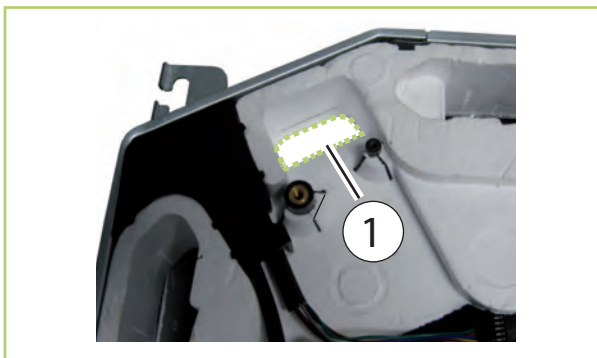


Fig. 36: Fresh air inlet

- 1: Fresh air inlet

7 Condensate connection and safe drainage

- The condensate tray should have an incline of min. 2%. This is the responsibility of the customer. If necessary, fit vapour-diffusion-proof insulation.
- If the level of the condensation pipe on the unit is above that of the outlet, route the pipe vertically upwards and then with a fall to the drain
- Guide the unit's condensation pipe into the drain pipe. If the condensation is being guided to a drainage pipe, please install a siphon-like hose guideway which acts as an odour seal. The diameter of the condens connecting piece is 25 mm.
- When operating the unit at outside temperatures below 4 °C, ensure the condensate drainage is laid to protect it against frost. The lower part of the housing and condensate tray is also to be kept frost free in order to ensure permanent draining of the condensate. If necessary, fit a pipe heater.
- Following installation, check that the condensate run off is unobstructed and ensure that the line is durably leak tight.

Condensate draining

If the temperature falls below the dew point, condensation will form on the cooling fins during cooling mode. A collection tray together with a condensation pump and float switch are fitted as standard below the cooling fins. Should the float switch trip a protective shutdown due to inadequate removal of the condensation, the pump will switch on immediately and run on for approx. three minutes.

Ensured discharge in the event of leakage

! NOTICE!

Local regulations or environmental laws, for example the German Water Resource Law (WHG), can require suitable precautions to protect against uncontrolled draining in case of leakage to provide for safe disposal of escaping refrigerator oil or hazardous media.

! NOTICE!

The maximum capacity of the condensate pump is 500 mm WS. External influences, such as air-side back pressure, contamination, or wear may cause a reduction in performance. To ensure safe operation function, we recommend a maximum conveyor height of 450 mm should not be exceeded!

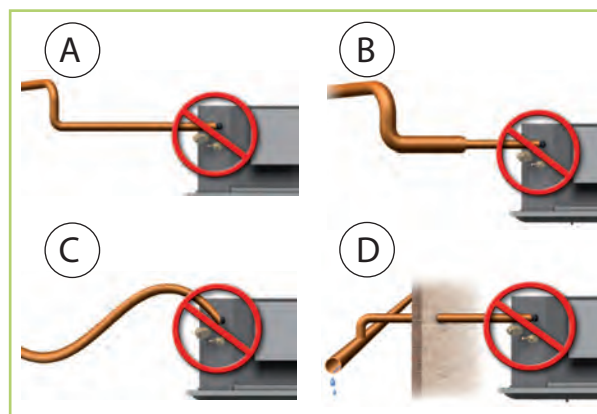


Fig. 37: Condensate connection - wrong!

- A: Faraway riser
- B: Too large/small condensate pipe
- C: No slope
- D: No free outlet

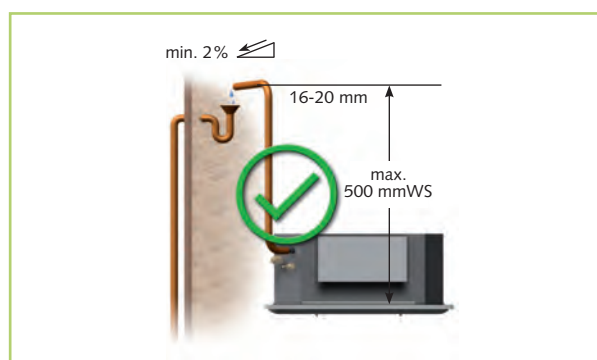


Fig. 38: Condensate connection - right!

8 Electrical wiring

8.1 General information

A protected mains supply cable is to be connected to the outdoor unit and four-wire control line is to be connected to the indoor unit respectively and protect accordingly.

DANGER!

All electrical installation work is to be performed by specialist companies. Disconnect the power supply when connecting the electrical terminals.

NOTICE!

The electrical connection for the units must be made at a separate feedpoint with a residual current device in accordance with local regulations and should be laid out by an electrician.

- We recommend to install a main / repair switch on the building near the indoor unit.
- The terminal blocks for making the connections are located inside of the unit. After opening the cover, they are reachable.
- If a condensate pump is available as an accessory, when using a turn off switch of the pump stop the power supply to the indoor unit.

8.2 Unit connection

Make the connection as follows:

1. ➤ Open the air inlet grill.
2. ➤ Remove the cover of the control box (Fig. 40).
3. ➤ Guide the power-free cable through the edge protection rings in the box and lock the cable in the strain relief.
4. ➤ Then connect the cable according to the wiring diagram.
5. ➤ Connect the electrical connector of the cover with the corresponding counterparts of the cassette. A confusion is not possible.
6. ➤ Re-assemble the unit.



Check all plugged and clamped terminals to verify that they are seated correctly and make permanent contact. Tighten as required.



Fig. 39: Access to the switch box

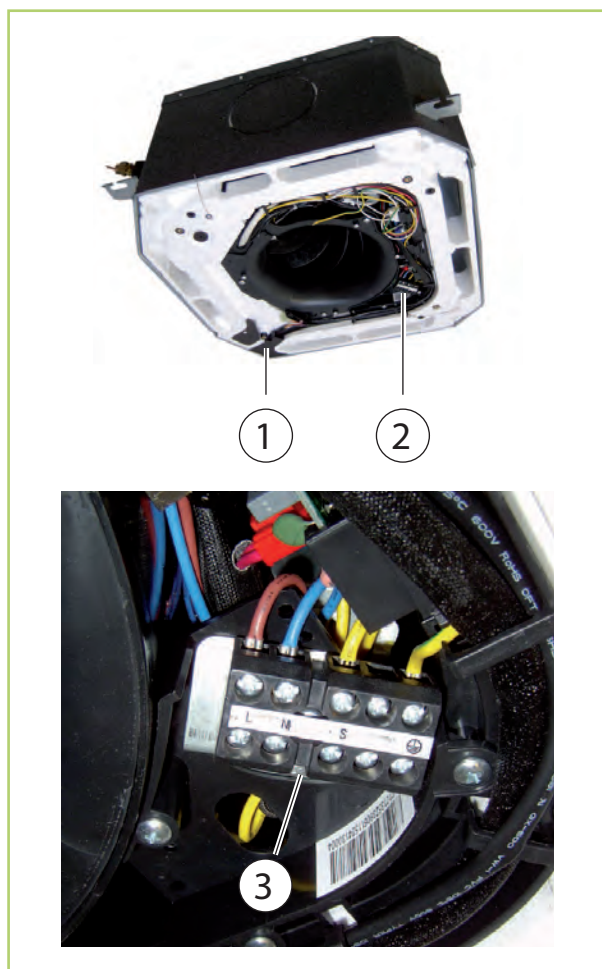


Fig. 40: Unit connection

- 1: Entrance power supply
- 2: Dismantle the cover of the switch box
- 3: Connection control line from the outdoor unit

8.3 Electrical connection diagram

Connection MVT 601 DC-1051 DC

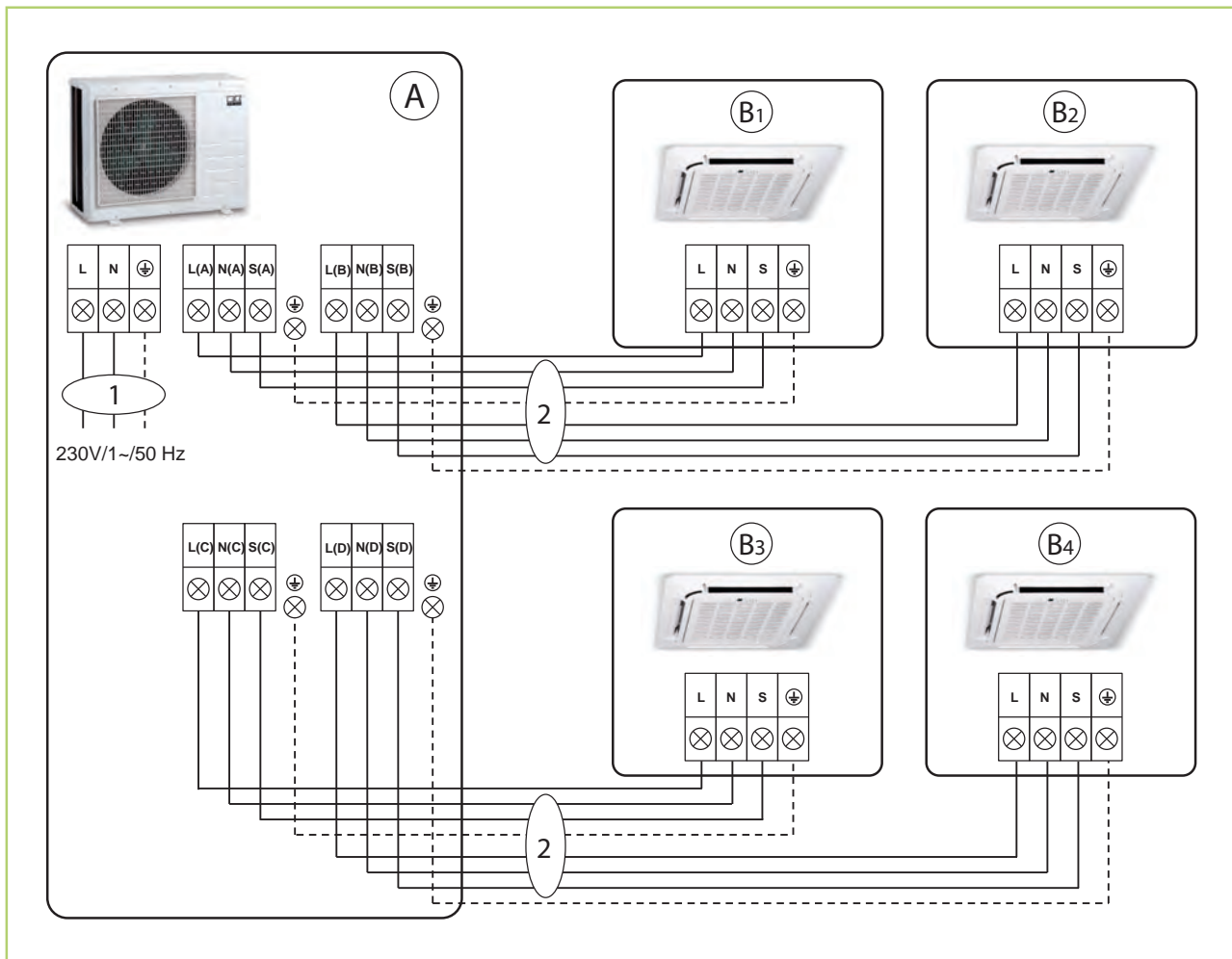


Fig. 41: Electrical connection diagram

A: Outdoor unit MVT 601 DC-1051 DC
B: Indoor units MXD 202-522

1: Power supply
2: Communication lines

8.4 Choice of unit

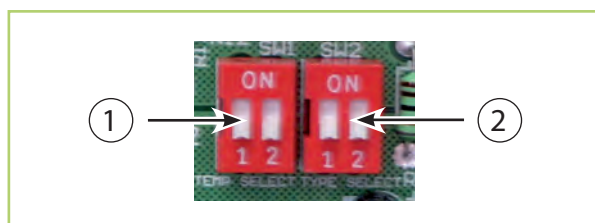










Fig. 42: Choice of unit with DIP-switch

- 1: DIP-switch 1 (SW6)
- 2: DIP-switch 2 (SW7)

DIP-switch 1 (SW6)		DIP-switch 2 (SW7)	
Choice of temperature		Choice of unit	Unit
	6 K		MXD 202
	4 K		MXD 262
	2 K		MXD 352
	EEPROM-dependend		MXD 522

8.5 Electrical circuit diagram

MXD 202-352

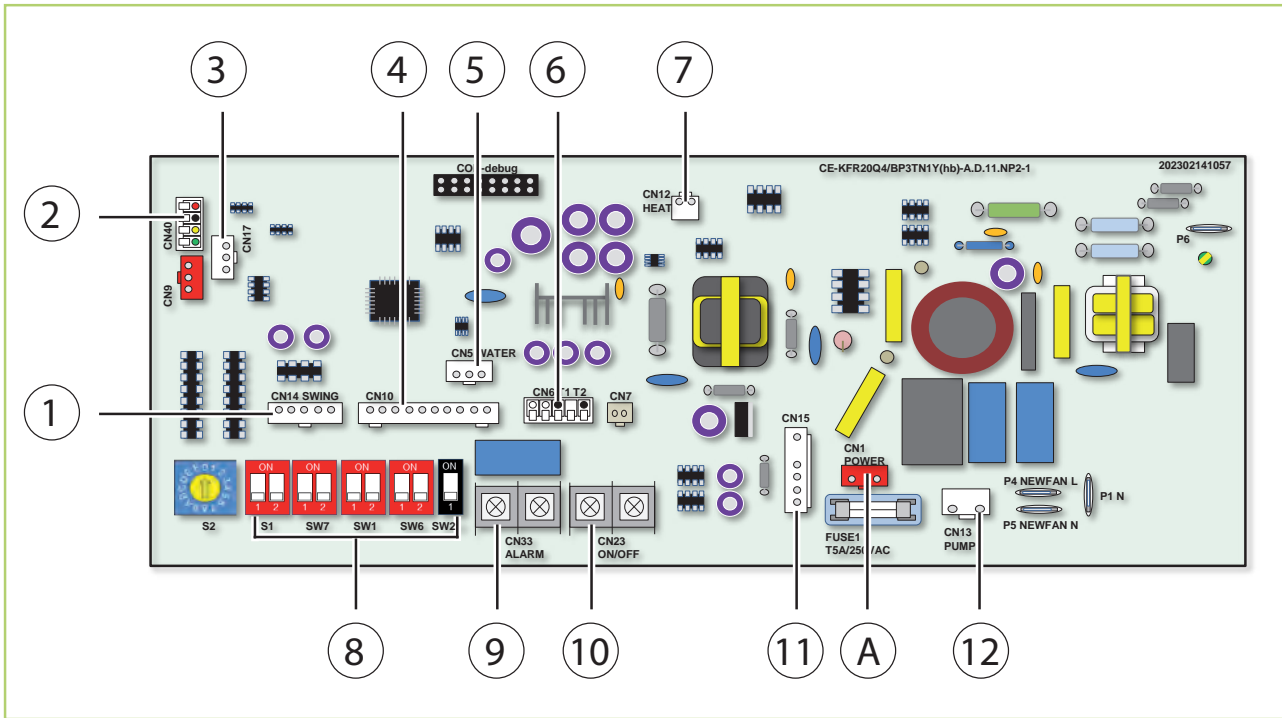


Fig. 43: Electrical circuit diagram

- | | | | |
|----|--|-----|--|
| A: | Power supply control board | 7: | External start/stop contact |
| 1: | Swing motor | 8: | DIP-switch |
| 2: | Connectivity cable remote control | 9: | Alarm contact (optional) |
| 3: | MCC-bus | 10: | External start/stop contact (optional) |
| 4: | Connection display board | 11: | Evaporator fan motor |
| 5: | Liquide level switch condensate | 12: | Connection condensate pump |
| 6: | Probe suction pipe, probe room temperature | | |

MXD 522

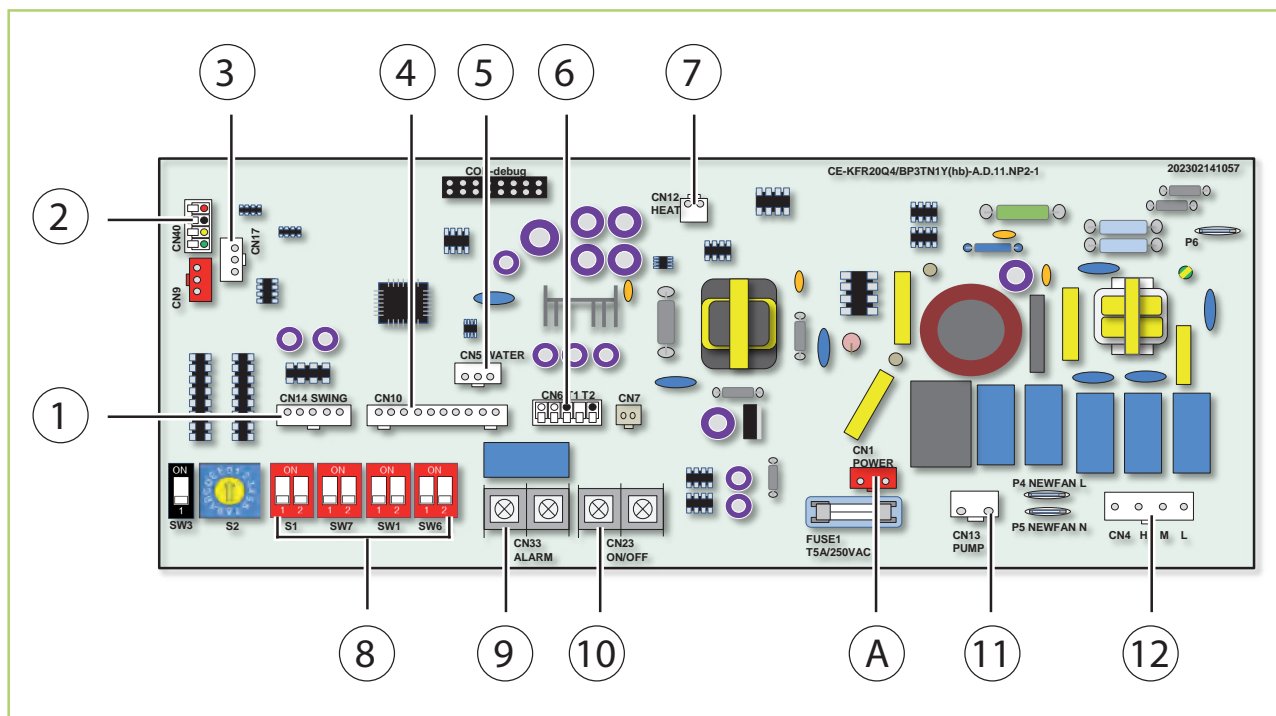


Fig. 44: Electrical circuit diagram

- | | | | |
|----|--|-----|--|
| A: | Power supply control board | 7: | External start/stop contact |
| 1: | Swing motor | 8: | DIP-switch |
| 2: | Connectivity cable remote control | 9: | Alarm contact (optional) |
| 3: | MCC-bus | 10: | External start/stop contact (optional) |
| 4: | Connection display board | 11: | Connection condensate pump |
| 5: | Liquide level switch condensate | 12: | Evaporator fan motor |
| 6: | Probe suction pipe, probe room temperature | | |

9 Commissioning

! NOTICE!

Commissioning should only be performed by specially trained personnel and documented after the certificate has been issued. Observe the operating manuals for the indoor unit and outdoor unit when commissioning the entire system.

Functional test for cooling mode



Check the DIP switch settings on the PCB, as illustrated on chapter "Choice of unit". If necessary, set the DIP switches to the appropriate indoor unit type.

1. ➤ Switch the supply voltage on.
2. ➤ Use the remote control to turn on the unit and select the cooling mode, maximum fan speed and lowest nominal temperature.
3. ➤ Measure and record all the required values in the commissioning report and check the safety functions.
4. ➤ Check the control system for the unit using the functions described in the chapter "Operation". Timer, temperature setting, fan speeds and changing to air circulation or dehumidifying mode.
5. ➤ Check the correct function of the condensation line by pouring distilled water into the condensation tray. A bottle with a spout is recommended for pouring the water into the condensation tray.

Functional test for heating mode

1. ➤ Switch the supply voltage on.
2. ➤ Use the remote control to switch on the unit and select the heating mode, maximum fan speed and highest nominal temperature.
3. ➤ Measure and record all the required values in the commissioning report and check the safety functions.
4. ➤ Measure the air intake temperature of the ceiling mounted cassette and the room temperature approx. 1.5 m above the floor. In the event of deviation, correct any temperature difference by means of the DIP switch SW1 (s. ↪ on page 31).
5. ➤ Check the control system for the unit using the functions described in the chapter "Operation". Timer, temperature setting, fan speeds.

Final tasks

- Reassemble all disassembled parts.
- Familiarise the operator with the system.

! NOTICE!

Check that the shut-off valves and valve caps are tight after carrying out any work on the cooling cycle. Use appropriate sealant products as necessary.

10 Shut-down

Temporary shut-down

1. ➤ Allow the indoor unit to run for 2 to 3 hours in air circulation mode or in cooling mode at the maximum temperature setting in order to remove any residual moisture from the unit.
2. ➤ Shut down the system using the remote control.
3. ➤ Switch off the voltage supply to the unit.
4. ➤ Check the unit for visible signs of damage and clean it as described in the chapter "Care and maintenance"

Permanent shut-down

Ensure that equipment and components are disposed of in accordance with the applicable regulations, e.g. through authorised disposal and recycling specialists or at collection points.

REMKO GmbH & Co. KG or your contractual partner will be pleased to provide a list of certified firms near you.

11 Troubleshooting and customer service

The equipment and components are manufactured using state-of-the-art production methods and tested several times to verify their correct function. If malfunctions should occur, please check the functions as detailed in the list below. For installations with an indoor unit and outdoor unit, refer to the chapter "Troubleshooting and customer service" in both manuals. Please inform your dealer if the unit is still not working correctly after all the functional checks have been performed!

Malfunctions

Fault	Possible cause	Checks	Remedy
The unit does not start or switches it self off	Power outage, under-voltage, defective mains fuse / main switch in off position	Are all other electrical installations functioning correctly?	Check voltage if necessary wait until turned on again.
	Damaged mains cable	Are all other electrical installations functioning correctly?	Repair by a specialist
	Wait time after switching on is too short	Have approx. 5 minutes elapsed since the restart?	Schedule longer waiting periods
	Temperature outside operating range.	Are the fans in the indoor unit and outdoor component working correctly?	Take into account the temperature range for the indoor unit and outdoor component
	Electrical surges caused by thunderstorms	Have there been lightning strikes in the area recently?	Switch off the mains breaker and switch it back on. Have it checked by a specialist
	Fault in external condensation pump	Did the pump shut down due to a fault?	Check and if necessary clean the pump
The unit does not respond to the remote control	Transmission distance too far / receiver affected by interference	Does the indoor unit beep when pressing a button?	Reduce the distance to less than 6 m or change position
	Defective remote control	Is the unit running in manual mode?	Replace the remote control
	Receiver or transmitter unit exposed to excessive solar radiation	Does it function correctly in the shade?	Place the receiver & transmitter unit in the shade
	Electromagnetic fields are interfering with transmission	Does it function when switching off possible sources of interference?	Signal is not transmitted when interference sources are operational
	Button in remote control jammed / two buttons pressed at same time	Does the "Send" symbol appear on the display?	Release the button / press only one button
	Batteries in remote control are flat	Have new batteries been inserted? Is the display incomplete?	Insert new batteries
The unit is running with reduced or without cooling / heating output	Filter is unclean / air inlet / outlet blocked by foreign objects	Have the filters been cleaned?	Clean the filters

Fault	Possible cause	Checks	Remedy
	Windows and doors open. Heating/cooling loads increased	Have there been any structural / usage-related changes?	Close windows and doors / install additional units
	Neither cooling nor heating mode has been set	Does the cooling symbol appear on the display?	Correct the settings for the unit
	Fins on outdoor component blocked by foreign objects	Is the fan on the outdoor component running? Are the fins unobstructed?	Check the fan or winter controller, reduce the air resistance
	Leaking refrigerant circuit	Are there signs of frost on the fins of the indoor unit?	Repair by specialist
	Outdoor component iced up	Check outdoor component. Has the cassette sensor on the outdoor component been correctly positioned?	De-ice and fit the sensor at the point where the most ice forms
Condensation discharge on unit	Drainage pipe on collection container clogged / damaged	Can the condensation drain off without any obstruction?	Clean the drainage pipe and collection container
	Faulty external condensation pump or float	Is the collection tray full of water and the pump not running?	Call out a specialist to replace the pump
	Condensation has not drained away and has collected in the condensation line	Is there a steady fall on the condensation pipe? Check there is no blockage in the pipe	Ensure there is a fall when laying the condensation pipe and clean the pipe
	Condensation does not drain off	Are the condensation lines unblocked and laid on a slope? Are the condensation pump and float switch functioning correctly?	The condensation line must have a fall. If necessary, clean the pipe. A faulty condensation pump and float switch should be replaced
	Float is stuck or jammed due to excessive dirt	Are the LEDs on the receiver unit of the indoor unit flashing?	Should be cleaned by specialist firm

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Fault indication by flashing code

LED OPERATION (green)	LED TIMER (orange)	LED DEF/FAN (red)	LED ALARM (red)	OU Display	Cause	Required action
on		on			Normal operation, no faults: heating mode	-
on					Normal operation, no faults: cooling-, recirculating air or automatic mode	-
	on				Normal operation, no faults: On timer programmed	-
on	on				Normal operation, no faults: Off timer programmed	-
flashes				-	Probe recirculating air defective/actuated	Check resistance on sensor
		flashes		-	Probe vaporizer defective/actuated	Check resistance on sensor
	flashes			E7	Communication error between PCBs OU & IU	Check electrical connection leads
flashes	flashes			E0	EEPROM error	Check EEPROM
flashes			on	-	Shutdown inverter module	-
			flashes	-	Liquid level switch condensate pump defective/actuated	Contact specialist dealer
flashes	on			E4	Probe outdoor temperature OU actuated	Check resistance and temperature on sensor
flashes	on		on	E5	Surge voltage on outdoor unit	Check power supply
flashes		on		P0	Overtemperature compressor	Allow to cool compressor
flashes		on	on	-	Mode conflict: Set unit with fault display on refrigerators and other appliances to heating mode	Priority heating: program all units on cooling mode / de-energize
flashes		flashes	flashes	P3	Power consumption on OU too high	Check power consumption

For further fault diagnosis and troubleshooting s. corresponding user manual outer part.

12 Care and maintenance

Regular care and observation of some basic points will ensure trouble-free operation and a long service life.

DANGER!

Prior to performing any work, ensure the equipment is disconnected from the voltage supply and secured to prevent accidental switch-on!

Care

- Ensure the unit is protected against dirt, mould and other deposits.
- Clean the unit using a damp cloth. Do not use any caustic, abrasive or solvent-based cleaning products. Do not use a jet of water.
- Clean the fins on the unit prior to long shut-down periods.

Type of task	Commis- sioning	Monthly	Every 6 months	Yearly
Checks/maintenance/inspection				
General	●			●
Check voltage and current	●			●
Check function of compressor/fans	●			●
Dirt on condenser/evaporator	●	●		
Check refrigerant fill quantity	●		●	
Check condensate drainage	●		●	
Check insulation	●			●
Check moving parts	●			●
Sealing test for cooling cycle	●			● ¹⁾

¹⁾ See note

NOTICE!

Statutory regulations require an annual leak test for the cooling cycle dependant on the refrigerant quantity. Inspection and documentation of the work performed is to be carried out by specialist technicians.

Maintenance

- We recommend a maintenance contract with annual maintenance interval with an appropriate specialist company.



This enables you to ensure the operational reliability of the plant at all times!

Cleaning the cover of the indoor unit

1. ➤ Disconnect the supply voltage to the equipment.
2. ➤ Open and fold down the air inlet guard on the cover. The filter is held in place by the flaps screwed in at the side of the guard (Page 16, Fig. 1). (Fig. 45).
3. ➤ Clean the guard and cover using a soft, damp cloth.
4. ➤ Switch the supply voltage back on.

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Air filter for indoor unit

Clean the air filter at intervals of no more than two weeks. Reduce this interval if the air is especially dirty.

Cleaning the filter

1. ➤ Disconnect the supply voltage to the equipment.
2. ➤ Open and fold down the air inlet guard on the cover. The filter is held in place by the flaps screwed in at the side of the guard. (Fig. 45).
3. ➤ Tilt the filter to lift it out (Fig. 45).
4. ➤ Clean the filter using a normal vacuum cleaner (Fig. 46). To do so, turn the dirty side upward.
5. ➤ Dirt can also be removed by carefully cleaning with lukewarm water and mild cleaning agents. To do so, turn the dirty side downward (Fig. 47).
6. ➤ When using water, allow the filter dry out properly in air before replacing it in the unit.
7. ➤ Carefully insert the filter. Make sure it is seated correctly.
8. ➤ Close the cover as described above but in reverse order.
9. ➤ Switch the supply voltage back on.
10. ➤ Switch the unit on again.

Cleaning the condensation pump

The indoor unit includes a built-in condensation pump, for pumping the condensation to a drain at a higher level.

The pump is more or less maintenance free. The condensation pipes should be checked for dirt at regular intervals. Clean them as required.

If an external pump is also used, observe the maintenance and care instructions given in the separate operating manual.



Fig. 46: Cleaning using a vacuum cleaner



Fig. 47: Cleaning with lukewarm water



Fig. 45: Pull out the filter

13 Exploded view of the unit and spare parts list

13.1 Exploded view

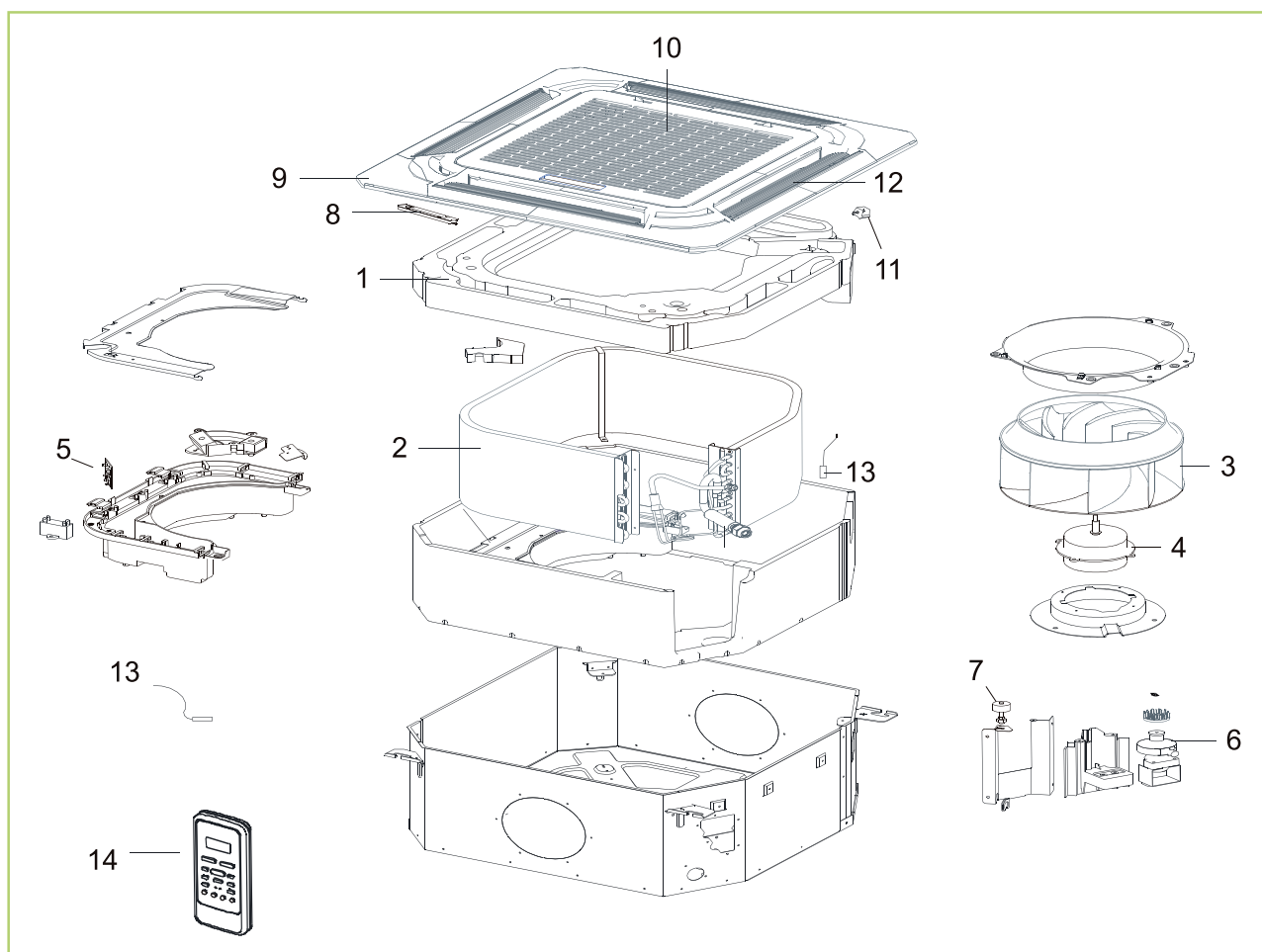


Fig. 48: Exploded view MXD 202-522

We reserve the right to modify the dimensions and structural design as part of the ongoing technical-development process.

13.2 Spare parts list

No.	Designation	MXD 202	MXD 262	MXD 352	MXD 522
	From series:	1324...	1325...	1326...	1327...
1	Condensation tray	1111053	1111053	1111053	1111053
2	Vaporiser	1111076	1111077	1111078	1112509
3	Fan wheel	1111056	1111056	1111056	1111056
4	Vaporiser fan motor	1112500	1112500	1112500	1112510
5	Control board	1112501	1112501	1112508	1112511
6	Condensation pump, cpl.	1111062	1111062	1111062	1111062
7	Condensation float switch	1112502	1112502	1112502	1112502
8	Display board	1111064	1111064	1111064	1111064
9	Cover cpl.	1112503	1112503	1112503	1112503
10	Air filter	1112504	1112504	1112504	1112504
11	Fin motor	1111068	1111068	1111068	1111068
12	Outlet fins, set of 4	1112505	1112505	1112505	1112505
13	Set of temperature probe	1112506	1112506	1112506	1112506
14	IR remote control	1112507	1112507	1112507	1112507

When ordering spare parts, please state the computerised part no., device number and device type (see identification plate)!

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Consulting

Thanks to intensive training, our consultants are always completely up-to-date in terms of technical knowledge. This has given us the reputation of being more than just an excellent, reliable supplier:

REMKO, a partner helping you find solutions to your problems.

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REMKO offers not just a well established sales network both nationally and internationally, but also has exceptionally highly-qualified sales specialists.

REMKO field staff are more than just sales representatives: above all, they must act as advisers to our customers in air conditioning and heating technology.

SFlbCustomer Service

Our equipment operates precisely and reliably. However, in the event of a fault, REMKO customer service is quickly at the scene. Our comprehensive network of experienced dealers always guarantees quick and reliable service.

